

**IN THE CLAIMS:**

- 1 1. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-  
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-  
3 mediate node, the method comprising the steps of:  
4       advertising to other intermediate nodes in the network that a resource is being  
5 gracefully shut down;  
6       determining if a condition that warrants shutting down the resource is met,  
7 wherein the condition is an expiration of a predetermined period of time; and  
8       if the condition is met, shutting down the resource.
- 1 2. (ORIGINAL) A method as defined in claim 1 wherein the resource is a protocol.
- 1 3. (ORIGINAL) A method as defined in claim 1 wherein the resource is an interface.
- 1 4. (ORIGINAL) A method as defined in claim 1 wherein the resource is a node.
- 1 5. (ORIGINAL) A method as defined in claim 1 comprising the steps of:  
2       entering one or more commands into the intermediate node to indicate the re-  
3 source is being gracefully shutdown; and  
4       advertising the resource is being gracefully shut down.
- 1 6. (ORIGINAL) A method as defined in claim 1 comprising the steps of:  
2       monitoring the resource to determine if the resource should be gracefully shut  
3 down; and  
4       if so, advertising the resource is being gracefully shut down.

1 7. (ORIGINAL) A method as defined in claim 1 wherein the intermediate node is cou-  
2 pled to one or more neighboring intermediate nodes in the plurality of intermediate  
3 nodes.

1 8. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 generating an advertisement message containing an overload bit that is asserted;  
3 and  
4 flooding the advertisement message to the neighboring intermediate nodes.

1 9. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 generating an advertisement message containing an age value set to a maximum  
3 age; and  
4 flooding the advertisement message to the neighboring intermediate nodes.

1 10. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 generating an advertisement message that associates the resource with a maxi-  
3 mum cost; and  
4 flooding the advertisement message to the neighboring intermediate nodes.

1 11. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 generating an advertisement message containing costs associated with non-stub  
3 links set to LSInfinity and costs associated with stub links set to an interface output cost;  
4 and  
5 flooding the advertisement message to the neighboring intermediate nodes.

1 12. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 advertising the resource to the neighboring intermediate nodes;  
3 generating an advertisement message that omits the resource; and  
4 flooding the advertisement message to the neighboring intermediate nodes.

1 13. (ORIGINAL) A method as defined in claim 7 comprising the steps of:  
2 generating an advertisement message containing a graceful shutdown type-length-  
3 value field; and  
4 flooding the advertisement message to the neighboring intermediate nodes.

1 14. (ORIGINAL) A method as defined in claim 13 wherein the advertisement message  
2 contains information that identifies the resource being gracefully shut down.

1 15. (CANCELLED)

1 16. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-  
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-  
3 mediate node, the method comprising the steps of:  
4 advertising to other intermediate nodes in the network that a resource is being  
5 gracefully shut down;  
6 determining if a condition that warrants shutting down the resource is met. A  
7 method as defined in claim 1 wherein the condition is the resource reaching a predeter-  
8 mined level of activity; and  
9 if the condition is met, shutting down the resource.

1 17. (CURRENTLY AMENDED) An intermediate node contained in a data network com-  
2 prising a plurality of intermediate nodes, the intermediate node comprising:  
3 a resource; and  
4 a processor configured to:  
5 a) advertise to other intermediate nodes in the network that the resource is being  
6 gracefully shut down,

- 7           b) determine if a condition that warrants shutting down the resource is met,  
8     wherein the condition is an expiration of a predetermined period of time; and  
9           c) if the condition is met, shutting down the resource.

1     18. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is a  
2     protocol.

1     19. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is an  
2     interface.

1     20. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is a  
2     node.

1     21. (ORIGINAL) An intermediate node as defined in claim 17 wherein the processor is  
2     configured to monitor the resource to determine if the resource warrants being gracefully  
3     shut down and if so, advertise the resource is being gracefully shut down.

1     22. (ORIGINAL) An intermediate node as defined in claim 17 wherein the processor is  
2     configured to advertise the resource is being gracefully shut down in response to one or  
3     more commands entered into the intermediate node.

1     23. (ORIGINAL) An intermediate node as defined in claim 17 wherein the intermediate  
2     node is coupled to one or more neighboring intermediate nodes contained in the plurality  
3     of intermediate nodes.

1     24. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2     configured to generate an advertisement message containing an overload bit that is as-  
3     serted and flood the advertisement message to the neighboring intermediate nodes.

- 1 25. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2 configured to generate an advertisement message containing an age value set to a maxi-  
3 mum age and flood the advertisement message to the neighboring intermediate nodes.
- 1 26. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2 configured to generate an advertisement message that associates the resource with a  
3 maximum cost and flood the advertisement message to the neighboring intermediate  
4 nodes.
- 1 27. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2 configured to generate an advertisement message containing costs associated with non-  
3 stub links set to LSInfinity and costs associated with stub links set to interface output cost  
4 and flood the advertisement message to the neighboring intermediate nodes.
- 1 28. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2 configured to generate an advertisement message that omits the resource that is being  
3 gracefully shut down and flood the advertisement message to the neighboring intermedi-  
4 ate nodes.
- 1 29. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is  
2 configured to generate an advertisement message containing a graceful shutdown type-  
3 length-value field and flood the advertisement message to the neighboring intermediate  
4 nodes.
- 1 30. (ORIGINAL) An intermediate node as defined in claim 29 wherein the advertisement  
2 message contains resource information that identifies the resource being gracefully shut  
3 down.

1 31. (CURRENTLY AMENDED) An intermediate node contained in a data network  
2 comprising a plurality of intermediate nodes, the intermediate node comprising:  
3 a resource;  
4 means for advertising the resource is being gracefully shut down to other interme-  
5 diate nodes in the network;  
6 means for determining if a condition warranting the graceful shutdown of the re-  
7 source is met, wherein the condition is an expiration of a predetermined period of time;  
8 and  
9 means for shutting down the resource if the condition is met.

1 32. (CURRENTLY AMENDED) A computer readable medium comprising computer  
2 executable instructions for execution in a processor for:  
3 advertising a resource contained in an intermediate node is being gracefully shut  
4 down to other intermediate nodes in a network;  
5 determining if a condition that warrants shutting down the resource is met,  
6 wherein the condition is the expiration of a predetermined period of time; and  
7 if the condition is met, shutting down the resource.

1 33. (CANCELLED)

1 34. (CURRENTLY AMENDED) A computer readable medium comprising computer  
2 executable instructions for execution in a processor for:  
3 advertising a resource contained in an intermediate node is being gracefully shut  
4 down to other intermediate nodes in a network;  
5 determining if a condition that warrants shutting down the resource is met, A  
6 computer readable medium as defined in claim 32 wherein the condition is the resource  
7 reaching a predetermined level of activity; and  
8 if the condition is met, shutting down the resource.

1 35. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-  
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-  
3 mediate node wherein the resource is associated with one or more connections, the  
4 method comprising the steps of:

5 notifying a head-end node of each connection associated with the resource that the  
6 resource is being gracefully shut down;

7 determining if a condition associated with the graceful shutdown of the resource  
8 is met, wherein the condition is the expiration of a predetermined period of time; and  
9 if the condition is met, shutting down the resource.  
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1 36. (CURRENTLY AMENDED) A method as defined in claim ~~35~~ 38 comprising the  
2 steps of:

3 for each connection:

- 4 a) establishing an alternative connection;  
5 b) switching traffic from the connection to the alternative connection; and  
6 c) tearing down the connection.

1 37. (CANCELLED)

1 38. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-  
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-  
3 mediate node wherein the resource is associated with one or more connections, the  
4 method comprising the steps of:

5 notifying a head-end node of each connection associated with the resource that the  
6 resource is being gracefully shut down;

7 determining if a condition associated with the graceful shutdown of the resource  
8 is met. A method as defined claim 35 wherein the condition is the resource reaching a  
9 predetermined level of activity; and

10        if the condition is met, shutting down the resource.

1        39. (CURRENTLY AMENDED) A method as defined claim-~~35~~ 38 wherein the condition  
2        is ~~further includes~~ a head-end node associated with a connection signaling that the con-  
3        nection is being torn down.

1        40. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-  
2        mediate nodes, a method for gracefully shutting down a resource contained in an inter-  
3        mediate node wherein the resource is associated with one or more connections and one or  
4        more connectionless protocols, the method comprising the steps of:  
5                gracefully shutting down the one or more connections;  
6                determining if a first condition associated with shutting down the connections is  
7        met;  
8                gracefully shutting down the one or more connectionless protocols;  
9                determining if a second condition associated with the shutting down the connec-  
10        tionless protocols is met;  
11                ~~determining if a condition associated with the graceful shutdown of the resource~~  
12        ~~is met;~~ and  
13                if the second condition is met, shutting down the resource.

1        41. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the first con-  
2        dition is the expiration of a predetermined period of time.

1        42. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the first con-  
2        dition is the resource reaching a predetermined level of activity.

1        43. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second  
2        condition is an expiration of a predetermined period of time.



1 44. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second  
2 condition is the resource reaching a predetermined level of activity.

1 45. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second  
2 condition is a signal from a head-end node associated with a connection, that is associ-  
3 ated with a connectionless protocol being shut down, indicating that the connection is be-  
4 ing torn down.